THE REVIEW

DEVOTED TO THE INTERESTS OF THE AMERICAN SOCIETY FOR METALS

Volume VII | Entered as Second Class Matter, July 26, 1930, at the Post Office at Cleveland, Ohio, under the Act of March 3, 1879 | MAY, 1934 | No. 3

THE OHIO STATE UNIVERSITY LIBRARY JUN 1 1934

NEW YORK SHOW TO BE BIGGEST SINCE 1929

108 Firms Already in New York Show

The following companies have already taken space in the National Metal Exposition to be held in New York, Oct. 1-5, 1934. This list is of May 28, 1934.

Air Reduction Sales Co., New York
Ajax Electric Co., Philadelphia
Ajax Electrothermic Corp., Trenton
Allegheny Steel Co., Brackenridge, Pa.
American Brass Co., Waterbury, Conn.
American Electric Furnace Co., Boston
American Gas Association, New York
"American Metal Market," New York
American Sheet & Tin Plate Co., Pittsburgh
American Steel & Wire Co., Chicago
Aurora Metal Co., Aurora, Ill.
Babcock & Wilcox Co., New York
Baldwin-Southwark Corp., Philadelphia
Bastian-Blessing Co., Chicago
Bausch & Lomb Optical Co., Rochester
Bethlehem Steel Co., Bethlehem, Pa.
Blakeslee & Co., G. S., Chicago
Bristol Co., Waterbury, Conn.
Brown Instrument Co., Philadelphia
Brown-Wales Co., Boston
Carboloy Co., Inc., Detroit
Carborundum Co., Niagara Falls
Carnegie Steel Co., Pittsburgh
Climax Molybdenum Co., Detroit
Cling-Surface Co., Buffalo
Crucible Steel Co. of America, New York
Dardelet Threadlock Corp., New York
De Forest & Associates, A. V., New York
Detroit Alloy Steel Co., Detroit
Dow Chemical Co., Midland, Mich.
Driver-Harris Co., Harrison, N. J.
Du Pont De Nemours & Co., E. I., R. & H. Chemicals Department, Wilmington, Del.
Electro Alloys Co., Elyria, O.
Electro Metallurgical Sales Corp., New York
Ford Sales Co., J. B., Wyandotte, Mich.
Foxboro Co., Foxboro, Mass.
Gathmann Engineering Co., Baltimore
General Alloys Co., Boston
General Electric Co., Schenectady
General Electric X-Ray Corp., Chicago
Globar Corp., Niagara Falls
Gogan Machine Co., Cleveland
Grasselli Chemical Co., Cleveland
Great Lakes Steel Corp., Detroit
Halcomb Steel Co., Syracuse
Hauck Manufacturing Co., Brooklyn
Hayes, Inc., C. I., Providence, R. I.
Haynes-Stellite Co., Kokomo, Ind.
Heppenstall Co., Pittsburgh
Hevi Duty Electric Co., Milwaukee
Hobart Brothers Co., Troy, O.
Hollup Corp., Chicago
Houghton & Co., E. F., Philadelphia
Illinois Steel Co., Chicago
Illinois Testing Laboratories, Chicago
International Nickel Co., New York
"Iron Age," New York
Jones & Laughlin Steel Corp., Pittsburgh
Kelley-Koett Mfg. Co., Covington, Ky.
Leeds & Northrup Co., Philadelphia
Leitz, Inc., E., New York
Lincoln Electric Co., Cleveland
Linde Air Products Co., New York
"Machinery," New York
Madison-Kipp Corp., Madison, Wis.
Magnetic Analysis Corp., Long Island City, N. Y.
Manhattan Rubber Mfg. Co., Passaic, N. J.
Marburg Brothers, Inc., New York
Metal & Thermit Corp., New York
"Metals & Alloys," New York
Michigan Steel Casting Co., Detroit
Midvale Co., Philadelphia
Milne & Co., A., New York
Minneapolis-Honeywell Regulator Co., Minneapolis
Molybdenum Corp. of America, Pittsburgh
Morse Twist Drill & Machine Co., New Bedford, Mass.
National Carbon Co., Cleveland
National Tube Co., Pittsburgh
New Jersey Zinc Co., New York
Norton Co., Worcester
Olsen Testing Machine Co., Tinius, Philadelphia
Penton Publishing Co., Cleveland
Potts Co., Horace T., Philadelphia
Ransohoff, Inc., N., Cincinnati
Republic Steel Corp., Massillon
Roebling's Sons Co., John A., Trenton, N. J.
Scherr Co., George, New York
Shore Instrument & Mfg. Co., Jamaica, N. Y.
Spencer Turbine Co., Hartford
Stuart & Co., D. A., Chicago
Udylite Process Co., Detroit
Union Carbide Co., New York
Vanadium Corp. of America, New York
Vapofier Corp., Chicago
Victor Saw Works, Inc., Middletown, N. Y.
"Welding Engineer," Chicago
Westinghouse Electric & Mfg. Co., East Pittsburgh
Wheelock, Lovejoy & Co., Inc., Cambridge, Mass.
Wickwire Spencer Steel Co., New York
Wilson Mechanical Instrument Co., New York
Youngstown Sheet & Tube Co., Youngstown
Zeiss, Inc., Carl, New York

The American Gas Association, as usual, is sponsoring a huge display of industrial gas equipment. This section generally contains about 20 exhibitors. At press time the list is incomplete, but includes the following:

American Gas Furnace Co., Elizabeth, N. J.
Hones, Charles A., Inc., Baldwin, N. Y.
Partlow Corp., New Hartford, N. Y.
Selas Co., Philadelphia
Surface Combustion Corp., Toledo

Nominating Committee Report

May 25, 1934

Mr. William Eisenman, Secretary,
American Society for Metals,
Cleveland, Ohio.

Dear Sir:

We beg to report that in accordance with the Constitution, the Nominating Committee met on the afternoon of Thursday, May 24, 1934, at the Engineers' Club, New York City, and made the following nominations:

For President, B. F. Shepherd, Ingersoll-Rand Co.
For Vice-President, R. S. Archer, Republic Steel Corp.
For Secretary, W. H. Eisenman, Cleveland.
For Trustees (2), Walter Mathesius, Illinois Steel Co.; G. B. Waterhouse, Massachusetts Institute of Technology.

All members of the Committee were present at the meeting and the nominations were unanimous.

Faithfully yours,
Gordon A. Webb
Arthur T. Clarage
F. P. Flagg
J. B. Johnson
R. M. Pease
Gerald R. Brophy
Bradley Stoughton, *Chairman,*
Nominating Committee.

WASHINGTON HEARS JONES, SPALDING

Cast Steel, Tool Steels are Topics at Two Meetings

By W. H. Swanger

The Washington chapter on Feb. 21 enjoyed a second evening of the present season devoted to a discussion on steel castings. The address of the evening by A. C. Jones, research engineer, Lebanon Steel Foundry, was entitled "Alloy Steel Castings."

Mr. Jones' talk was particularly impressive in showing the great number of different alloy compositions available in castings in regular commercial practice with a further spread in variety obtained by heat treatments. Data are available that permit the selection of the most suitable composition and heat treatment to meet the requirements of a given set of service conditions.

On March 21 S. C. Spalding, assistant metallurgist with the American Brass Co., Waterbury, addressed the chapter on the subject "Tool Steels." Mr. Spalding described, very interestingly, the procedure followed by a large user in securing tool steels on strict adherence to definite specifications.

Illustrations were given of five acceptance tests made by his company as well as of the tool room control to obtain the utmost in performance of the tool from the steel best adapted to the specific purpose.

ENJOY TALK ON PLASTICS

Rochester Men Hear C. M. Blount Tell how Plastics are Made and Molded

By J. M. Keating

The regular monthly meeting of the Rochester chapter was held at the Engineering Building at the University of Rochester on March 12.

The speaker of the evening was C. M. Blount of the Bakelite Corporation, whose subject was "Development in the Molding of Plastic Materials." Moving pictures on the making of phenolic resins and the manufacture of finished product were shown.

Great interest was indicated in this meeting as evidenced by the numerous questions asked. Discussions were opened by Mr. Emmett Moore, "Delco" Marshall, T. W. Knight, T. B. Guthrie, W. B. Huntley, G. A. Lux, C. E. Codd.

CLEVELAND HOLDS NON-FERROUS NIGHT

H. Foster Bain Speaks after Inspection of Brass Mill

By H. B. Pulsifer

On the 9th of April the Cleveland chapter departed from its iron and steel schedule for a session on copper and brass. During the afternoon the members of the chapter were invited to an inspection trip in the new local plant of the Chase Brass & Copper Co. and in the evening the technical speaker was Dr. H. Foster Bain, managing director of the Copper & Brass Research Association.

More than a hundred members availed themselves of the opportunity to see the details of the latest technique in melting and fabricating the copper products at the Chase plant. Immediately after the visit the members assembled for dinner at the Cleveland Club.

The speaking began promptly after the coffee with Chairman Van Horn introducing Colonel Hayden Eames, well-known authority on matters pertaining to the Far East. The Colonel brilliantly described the meaning of events that are under way in China, Russia and Japan.

Chairman Van Horn then presented Dr. D. K. Crampton, director of research, Chase Brass & Copper Co., who presided as technical chairman for the session. Dr. Crampton introduced Dr. H. Foster Bain with appropriate remarks.

Dr. Bain switched from the technicalities of metallurgy to the economics of copper in a most interesting way. Long experience in many foreign lands and unusually complete information on domestic conditions enabled him to discuss many phases of the subject. It was a very enjoyable talk.

WILLIAMS HEADS BATTELLE

Gillett Now Technical Adviser

Clyde E. Williams, since 1929 associate director of Battelle Memorial Institute, has been made director of the institute, and Dr. H. W. Gillett, formerly director, has been made chief technical adviser.

Dr. Gillett will now devote his entire time to the scientific side of the work.

SPACE RESERVED ALREADY BEYOND LAST YEAR'S TOTAL; FINE PROGRAM PLANNED

Symposium on Grain Size Features one of the Greatest Technical Programs ever Arranged by Society

The Detroit show in 1933 was big, but already the 1934 National Metal Exposition in New York City, Oct. 1-5, is bigger! Early this year W. H. Eisenman, secretary of the Society and director of the Exposition, laid out a floor plan of exhibit space for the New York show in the Port Authority Bldg., at 111 Eighth Ave.

He was optimistic about prospects for a big show, but he did not expect the tremendous enthusiasm with which the metal industry greeted the floor plans. Already reservations for space in the New York show exceed the total space used in Detroit last year.

However, even this great show will not tax the facilities of the Port Authority Bldg. Additional space was instantly laid out, and revised floor plans sent to the exhibitors. Every exhibit will be on the same floor, affording maximum convenience to both exhibitors and visitors.

Floor plans and reservation forms have so far been distributed only to past exhibitors in the Exposition. General distribution will begin about June 1.

Technical Program Plans

Keeping pace with the progress of the Exposition are the plans for the National Metal Congress.

A symposium on the effect of grain size is expected to attract great interest. Because of the number of papers on this subject that have been prepared for the program by outstand-

Continued on Page Four

5 PENN CHAPTERS HOLD BIG MEETING

Penn State College is Host at Two-day Gathering

Group meetings of A.S.M. chapters received great impetus on May 4 and 5 when the five chapters in Pennsylvania successfully staged a two-day program at Pennsylvania State College, State College, Pa.

The meeting was held under the joint auspices of the Society and the School of Mineral Industries of the college. Participating chapters were Lehigh Valley, Philadelphia, Pittsburgh, Southern Tier and York.

Several hundred members and guests of the Society attended the meeting. Beside large representation from the participating chapters, delegations attended from Cleveland, Columbus, New Jersey and New York.

After registration on Friday morning, May 4, the first event was a trip through the plant of Titan Metal Mfg. Co., at Bellefonte, to see the manufacture of extruded brass rod.

Dr. O. E. Harder, assistant director of Battelle Institute, presided at the general session in the afternoon. Dean Edward Steidle of the School of Mineral Industries welcomed the groups.

Dr. John Johnston, director of research of U.S. Steel Corp., presented the first paper, "Research in the Steel Industry." He was followed by Frank J. Allen, York Ice Machinery Corp., who spoke on "Selection and Application of Steels in General Shop Practice."

The last paper of this session was "Wrought Aluminum Alloys for Structural Applications," by Dr. E. H. Dix, Jr., chief metallurgist of the research laboratories of Aluminum Co. of America.

A second technical session was held Saturday morning with Dr. Johnston in the chair. G. B. Upton, professor of experimental engineering at Cornell, opened the meeting with a paper entitled "Decomposition of Saturated Solutions with Particular Reference to Austenite."

B. F. Shepherd, vice-president of the Society and manager of the rock drill division of Ingersoll-Rand Co., then discussed "The P.F.—Characteristics of Steel." Dr. Harold L. Maxwell, metallurgist, E. I. duPont de Nemours and Co., concluded the session with his paper "Effect of Gases on Ferrous Metals at High Temperatures and Pressures."

The social side of the program was not neglected by D. F. McFarland, head of the department of metallurgy, H. B. Northrup, director of the division of mineral industries extension, and the other Society members who planned the meeting.

A very pleasant dinner at the campus Inn was held Friday night. President Ralph D. Hetzel of the college gave a short and very interesting talk. W. H. Eisenman, secretary of the A.S.M., served as toastmaster. Afterwards the students of the Penn State Metallurgical Society put on a really excellent program of entertainment.

The many ladies who accompanied their husbands to the meeting were well entertained by a program which included Friday's dinner and entertainment, an informal tea and a visit to the Home Economics building of the college.

GRAIN SIZE FEATURED AS OHIO MEN MEET

240 Men from 16 Chapters at Fine Meeting in Columbus

More than 240 members of the A. S. M., representing 16 chapters, gathered in Columbus on April 24 to attend the annual Tri-Chapter meeting sponsored by the Columbus, Cincinnati and Dayton chapters.

Proceedings opened in the afternoon with a session devoted to grain size. Dr. O. E. Harder, assistant director of Battelle Memorial Institute, acted as chairman of the session, which was held in the auditorium of the Institute.

A wealth of information on grain size was presented by the speakers on the program.

The first speaker was C. E. Sims, metallurgist of American Steel Foundries. His talk on "Grain Size in Steel Castings" evoked much discussion, as did that of Reid L. Kenyon, American Rolling Mill Co. metallurgist, who followed with a talk on the importance of grain size in sheet steel for deep drawing.

Among the many men joining in the discussion of these papers were E. C. Bain, U. S. Steel Corp.; John Chipman, University of Michigan Research; Prof. Dana J. Demorest, Ohio State University; Samuel Epstein, Battelle Institute; William R. Fleming, Andrews Steel Co.; H. W. Gillett, Battelle Institute; H. W. Graham, Jones & Laughlin Steel Corp.; E. R. Johnson, Republic Steel Corp.; Prof. J. O. Lord, Ohio State; B. F. Shepherd, Ingersoll-Rand; Jerome Strauss, Vanadium Corp.; E. E. Thum, *Metal Progress;* and E. C. Wright, National Tube Co.

Almost 200 attended the excellent dinner which followed the afternoon session, among the distinguished guests being five National officers. Prof. George N. Moffat, Columbus chapter chairman, presided at the dinner.

H. W. McQuaid's excellent talk in the evening, on "Grain Size in Carburizing and Forging Steel," brought to a distinguished close one of the finest meetings ever held by A. S. M. chapters in central and southern Ohio.

THE REVIEW

Devoted to the interests of the American Society for Metals

A Review of the Activities of the Chapters and National Organization

Published November, January, March, May, July and September by the
AMERICAN SOCIETY FOR METALS
(FORMERLY AMERICAN SOCIETY FOR STEEL TREATING)
7016 Euclid Ave., Cleveland, O.

W. H. PHILLIPS, *President*
EMIL GATHMANN, *Treasurer*
W. B. COLEMAN, *Director*
R. S. ARCHER, *Director*

B. F. SHEPHERD, *Vice-President*
W. H. EISENMAN, *Secretary*
H. G. KESHIAN, *Director*
E. C. BAIN, *Director*

W. P. WOODSIDE, *Director*

Subscription $.50 a year; 5 cents a copy

RAY T. BAYLESS ..... *Editor*
JOHN G. MAPES ..... *Managing Editor*

Volume VII Cleveland, O., May, 1934 No. 3

NEW YORKERS DISCUSS BAIN'S TALK

Crowe, Kinzel and Holden Contribute to Meeting

By F. H. Clark

At the March meeting of the New York chapter held on the 19th, motion picture film from the Bureau of Mines entitled "Metals of a Motor Car" was shown. The speaker for the evening, E. C. Bain, research metallurgist of the U. S. Steel Corp., discussed "The Role of the Common Elements in Alloy Steels."

During the prolonged discussion which followed, J. J. Crowe asked the effect of past history of the steel upon grain-size tests. Mr. Bain replied that Grossmann has shown in a most convincing manner that a fine-grained sample usually produced a finer grain in subsequent treatment than a coarse-grained sample of the same identical steel by virtue of its more numerous pearlite islands which served as nuclei. There is also, in all probability, a loss of grain-growth inhibition which results from high temperature treatment of billets, due to the solution or coalescence of the non-metallic particles which interfere with grain growth.

A. B. Kinzel inquired if an analysis for modified Ledebur oxygen had been made on a certain aluminum treated steel discussed and received the reply that many such anlyses indicated that with increased aluminum additions the reducible oxygen fell off rapidly. If any appreciable elemental aluminum remains, the sample is essentially free from the FeO type of oxide.

T. N. Holden suggested that perhaps too much emphasis in the past had been placed on poor grinding wheels as the cause of checking or grinding cracks. Mr. Bain pressed the point further by saying that in general the coarse-grained, deep hardening steels were reported to develop grinding cracks under the most carefully controlled grinding conditions.

HOMERBERG TELLS NITRIDING PROGRESS TO NEW JERSEYMEN

Many Enter Keen Discussion

By Ernest O. Olds

The 49th regular meeting of the New Jersey chapter was held in Newark on April 9. About 60 members and guests came in for dinner.

Many of our guests were from our neighboring New York City chapter, and it was a pleasure to have our New York friends with us. Come again, and often!

The principal speaker of the evening was our good friend, Dr. V. O. Homerberg, professor of metallurgy at M. I. T. and technical director of the Nitralloy Corp. Dr. Homerberg is recognized as one of the outstanding authorities, in the U. S., on Nitriding.

[Dr. Homerberg's excellent talks on Nitriding have been reported a number of times in previous issues, so it will not be abstracted again at this time.—EDITOR.]

As usual, Dr. Homerberg's clear delivery of his very interesting subject created such interest among the 150 odd members and guests present, that many participated in the lively discussion which followed the address; and which our chairman, Mr. Frazer, very reluctantly, was forced to close at 10:30 P. M.

CORRECTING AN ERROR!

In a report of W. E. Harvey's talk before the Lehigh Valley chapter, published in the March REVIEW, an error occurred in transcribing Mr. Harvey's remarks on the corrosion fatigue limits of steels.

The range for these limits should be from 12,000 to 25,000 lb. per sq. in., rather than as printed. This range holds for all steels, carbon or alloy, except stainless steels.

SPECTROSCOPY IS SUBJECT OF BUFFALO'S MEETING IN APRIL

Nitchie Tells Spectroscope Use

By F. L. Weaver

The dinner before the meeting of Buffalo chapter was attended by 29 members and guests. Vice-Chairman Burke introduced the speaker, C. C. Nitchie of Bausch and Lomb Optical Co., Rochester.

Mr. Nitchie's subject, "Spectroscopy," was very well delivered and covered the application of the spectroscope to the metals industry in the determination of very small amounts of metals which may seriously affect the physical properties of the alloy. This being particularly valuable in the die casting industry, where the very minute percentages of some metals which would be a real task for the best chemical analyst to find, are readily found in the spectrograph.

A very marked interest was evidenced by the long discussion that ensued.

Mr. Burke, Mr. Birdsong and Mr. Nagy were this month's winners of the guessing contest.

TELLS MONTREAL OF ALUMINUM ALLOYS

H. H. Richardson is Speaker March Chapter Meeting

By Gordon Sproule

At the March meeting of Montreal chapter members and guests heard a coffee talk and a technical lecture that were fully up to this season's high standard.

The coffee talk, by Mr. F. Nagler, chief engineer of Canadian Allis Chalmers, was on "Modern Archery." It was illustrated by specimens of bows and arrows, and by a good motion picture of the author hunting big game, and was nothing short of a startling revelation to most of his listeners.

The technical talk, by H. H. Richardson, research engineer of the Aluminum Co. of Canada, was on the "Characteristics and Applications of the New Aluminum Alloys."

Mr. Richardson showed on the screen the effects of the various alloying elements used. This slide of tabulated data also showed the effects of cold work and of heat treatment, which, with the alloy elements, are the three factors by which the mechanical properties of aluminum alloys are controlled.

He explained clearly the mechanism by which heat treatment produces high strength, now known as precipitation hardening. Aluminum containing, say, 4% Cu, if quenched from a high temperature, will retain the alloy in solid solution and will be comparatively soft and ductile. A second tempering or aging treatment causes precipitation of very fine, hard particles which stiffen the metal.

He also discussed corrosion resistance and described Alclad, a product in which the strong wrought alloy is coated with pure aluminum to protect it. The alloy ingot is cast integral with the pure aluminum and the combination is rolled as a unit.

A number of slides were shown illustrating the application of the various types of alloys.

NEW TITANIUM ALLOY DEVELOPED

Titanium Alloy Mfg. Co., Niagara Falls, has announced a new low carbon ferro carbon titanium, a deoxidizer designed mainly for the production of deep stamping and high finish auto body stock, ingot iron and similar soft steels which finish about 0.02% carbon.

The original ferro carbon-titanium, known as TAM FCT, will continue to be available while the new alloy will be known as TAM low carbon FCT.

WASHINGTON HEARS FOUR MEN DEBATE

Gillett, French, Strauss and McKinney Argue Alloy Steels

By William H. Swanger

Washington chapter endeavors to make the May meeting the outstanding one for the season. This year the meeting held on May 9 was not only outstanding for this year, but promises to be unique in chapter history.

The key-note of the meeting was informality. The program was entirely novel in that the chief event was a no-decision debate on alloy steels between four of the most widely known metallurgists of the Society, all past chairmen of the chapter, H. W. Gillett, H. J. French, Jerome Strauss and P. E. McKinney.

Each of the first three speakers was allotted twelve minutes (measured by a loud alarm clock) in which to present his case: Dr. Gillett on "Molybdenum as an Alloying Element"; Mr. French on "Nickel as an Alloying Element"; Mr. Strauss on "Vanadium as an Alloying Element." Each of the three was then permitted to strengthen his case in rebuttal, for five additional minutes. Mr. McKinney then summed up the case for "Alloy Steels in General" for an allotted time of seventeen minutes.

No small measure of the success of the meeting was due to the entertainment features preceding the debate. A dinner attended by fifty-five was the first item. In addition to the speakers of the evening, the chapter was honored by the presence of National President W. H. Phillips, National Treasurer Emil Grathmann, National Secretary "Smiling Bill" Eisenman, and W. P. Woodside of the Board of Trustees.

A surprise stunt, put on by a group of members of the chapter, consisted of four highly amusing skits portraying, in a friendly fashion, reputed characteristic activities of some of the guests. Sleight of hand and magician's tricks performed in a professional manner by home talent of the chapter, C. E. Jackson, concluded the entertainment features of the dinner.

BACH GIVES TIPS ON HEAT TREATING

Rhode Island Men Hold one of Year's Best Meetings

By Walter M. Saunders

The March meeting of the Rhode Island chapter was held at the rooms of the Providence Engineering Society, with A. D. Bach, president, New England Metallurgical Corp., Boston, as the speaker. The subject was "The Practical Heat Treatment of Steel," and was of extreme interest to one of the largest gatherings the chapter has had this year.

As a commercial heat treater, Mr. Bach has encountered successfully many of the most difficult problems in his field, and his talk emphasized the troubles encountered along the line, both in development and in practice.

In carburizing, for instance, he spoke of the present trend toward disregarding the double quench in many cases, substituting a single quench from the pot, or on the other hand, a slow cool in the pot, followed by one reheat. He stated that carburizing with gas from cracked oil, or by butane or propane, was definitely here to stay, and would progress rapidly.

In reheating after hardening, Mr. Bach stated that 80% of the automotive gear manufacturers reheated in cyanide for the avoidance of scale. He cautioned against such a practice for spring steel.

The advantages of the nitriding process were reviewed, and successful applications listed, which convinced many who were previously skeptical of the very practical aspects of the process.

"AIRCO" HANDLING SIL-FOS

To Market Handy & Harman Alloy

The new low melting point brazing alloy Sil-Fos, manufactured by Handy and Harman, will hereafter be distributed by the Air Reduction Sales Co. from all "Airco" Stations throughout the United States, in addition to many prominent supply houses.

The announcement should prove of special interest to all companies concerned with brazing and welding work, for the use of Sil-Fos is reported to be expanding rapidly in many fields where non-ferrous metals are joined. The increase in its use is due to several important features which make the brazing of non-ferrous metals and alloys a much easier, faster and more economical operation.

LEHIGH HEARS DR. BECKET ON THE CHROMIUM STEELS

April Meeting Is Interesting

By Neil Metcalf

The April meeting of the Lehigh Valley chapter was held in Reading on the 12th. Prof. Luther Witmer was in the chair.

Professors McFarland and Long of Penn State were guests of the chapter.

The principal speaker of the evening was Dr. F. M. Becket of the Union Carbide and Carbon Research Laboratories. He talked on heat resistant steels.

He emphasized the chromium steels. In the 4-6% Cr range, widely used in the oil cracking industry, he stated that the proper addition of titanium overcomes the air hardening properties of this class of steel.

Another new development is the addition of columbium to 18-8 steels. It inhibits intergranular corrosion when used in the ratio Cb:C::4:1 for ordinary temperatures, or 10:1 where the material will be used at high temperatures. When columbium is used there is no need to heat treat welds to avoid corrosion.

REFRACTORIES TALK OF GREAT INTEREST

Philadelphia Men Find Much Value in Dr. Seil's Paper

By Adolph O. Schaefer

A new subject for the Philadelphia chapter brought out a surprisingly large number to the March 30 meeting.

The speaker was Dr. Gilbert E. Seil, technical director of E. J. Lavino & Co., and the subject was "What the Metallurgist Should Know about Refractories."

Almost every metallurgist uses refractories in some form or other. Some metallurgical processes, notably melting, are circumscribed by the temperatures and stresses which the refractory furnace linings can withstand. And yet the metallurgist is only too prone to leave the character of the refractories and the method of lining his furnaces to the bricklayer. Furnaces are often carefully designed from an engineering standpoint, while no consideration is given to the refractories.

Dr. Seil asserted that the great majority of failures of furnace brickwork are due to improper laying of the bricks.

The chapter was surprised to learn of the vast amount of work that has been done in studying improved methods of making bricks. A remarkable series of slides illustrated this work. There is a great similarity apparent between this work, and that on steel.

The discussion following Dr. Seil's excellent talk was lively and long. Great interest was manifested in the maximum temperatures which can be withstood by refractory bricks for melting furnaces. The speaker gave full and complete information on this subject.

Preceding the meeting, the chapter held to its usual custom of a dinner with a speaker. On this occasion, Dr. Robert O. Van Deusen, director of the Fairmount Park Aquarium, addressed the dinner gathering on "Keeping Wild Fish in Captivity."

TALK ON NITRIDING FEATURES TRI-CITY'S TRIP TO ARSENAL

110 Attend Meeting on April 3

By Wayne L. Cockrell

The April meeting of the Tri-City chapter was held at Rock Island Arsenal on April 3.

A group of 110 assembled at 5:30 for an inspection trip through the Arsenal shops, the heat treating department and laboratories. The dinner in the Cafeteria was attended by 97 members and guests.

The technical session of the meeting consisted of a talk by Lt. Leslie S. Fletcher of the Rock Island Arsenal on "Nitriding of Ordnance Material."

Lt. Fletcher told of some rather remarkable depths of nitrided case which are obtained at the Rock Island Arsenal. Samples which he had with him showed a case in excess of $\frac{1}{32}$" in depth. Nitrided parts are being used successfully in combating the corrosion in recoil cylinders and resisting the wear on the pins of tractor tracks as well as a number of other applications.

Lt. Fletcher's talk resulted in a number of questions from the floor and a more chatty discussion of the subject took place after the meeting had actually broken up.

HEAR STORY OF NEW GOLDEN GATE BRIDGE

Chapter Enjoys Talks by 3 Engineers in April

By C. W. Horack

Members of the Golden Gate chapter were privileged to hear three very interesting talks on the fabrication and erection of the steel work that is going into the towers of the Golden Gate Bridge. The talks were given at the meeting on April 20. About 90 members and their guests were present at the dinner, and by the time the first talk was scheduled the number had increased to about 130.

George Nelson, metallurgist for the Shaw Laboratories and chairman of the chapter, presided. After a brief business meeting, during which candidates for the various offices in the chapter for the coming year were announced by Myron Bird, chairman of the nominating committee, the meeting was turned over to James Coulter of the Earle M. Jorgenson Co., who very ably introduced the speakers of the evening.

The first talk was given by I. F. Kurtz, assistant manager, McClintic Marshall Corp., whose subject was "Bridge Steel and Its Fabrication."

The aim of bridge engineers in designing modern long span bridges is to reduce the weight by the utilization of higher strength materials. Thus silicon steel, with its superior physical properties, is being used in increasing amounts in modern long span bridges. Mr. Kurtz showed where such steels are being used on the Golden Gate Bridge.

An immense quantity of bolts and rivets are needed to hold the structural members together. Their manufacture was then discussed by Lawrence Anderson, metallurgist for the Pacific Coast Steel Co. Mr. Anderson outlined the manufacture of the steel for the bridge bolts and rivets, starting from the charging of the furnace with the various raw materials, and then briefly told of the subsequent rolling operations which reduced the steel to the bar size from which the rivets are finally made.

Having thus learned of some of the problems connected with the manufacture and fabrication of the bridge tower materials, the talks of the evening were brought to a fitting close by A. F. McLane, superintendent of erection, McClintic-Marshall Co., who described some of the methods being used in erecting the various units. Due to the unusual dimensions and weights of the various tower sections, large special derricks and hoisting equipment are required.

TALK ON TESTING OF STEEL HOLDS JERSEYMEN'S INTEREST

McAdam Covers Impact, Fatigue

By Ernest O. Olds

New Jersey chapter's March meeting was well attended by many of our members and friends, who came to hear Dr. D. J. McAdam talk about "Impact and Fatigue Tests of Steel."

Dr. McAdam, metallurgist of the Bureau of Standards, at Washington, is recognized as a national authority on impact and fatigue testing.

He pointed to three variables which affect fatigue, (1) speed of application of load, (2) stress concentration, and (3) temperature. The effect of these conditions was clearly shown in several accompanying charts and curves.

The sharpness of the notch affects the stress concentration; the size, shape and finish of the notch affects the start of the break. He recommended the use of a very small notch, 1 mm. deep, leaving the surfaces unground.

During the discussion, it was pointed out that sand blasting and corrosion had a similar but not proportional effect in decreasing fatigue strength.

USED
Heat Treat Furnace
For Sale

Heat Treat Furnace—General Electric Elevator Type—Single Phase

Electrical capacity 45 KW. Inside working dimensions are — Width 32", Length 32", Height 22". Two loading cars — 32" x 32". Equipped with hoisting device suitable for 90 pounds air or water pressure.

Automatic Control Panel 110 volts. Catalog number 1775690-G2 with a Leeds & Northrup recording temperature controller for temperature from 0 to 1000° C.

PRICE $1,500.00
F.O.B. Port Huron, Michigan

For further information inquire—DETROIT ELECTRIC FURNACE COMPANY, 825 WEST ELIZABETH ST., DETROIT, MICHIGAN.

ASK FOR THESE FREE PAMPHLETS

High Strength Steel

Cromansil steel, a development of Electro Metallurgical Co., has high strength and good ductility "as rolled" and is thus fine for structural applications where its great strength saves much dead weight. Bulletin Je-16.

Copper Welding Rods

American Brass Co. describes in complete detail the welding properties and individual characteristics of 14 different copper alloy welding rods. The 16-page booklet also makes specific recommendations of welding procedure. Bulletin Je-89.

Rocking Furnaces

A booklet of Detroit Electric Furnace Co. tells how to operate their Type EL rocking electric furnace, a small unit for melting iron, steels, copper, brass, etc., in charges from 25-50 lb. Bulletin Je-98.

Homo Tempering

Leeds & Northrup Co. introduces a specialized Homo furnace for tempering heavy, dense loads of small articles. Production can be multiplied as much as four times. Complete description is given in Bulletin Je-46.

Testing with Monotron

Shore Instrument & Mfg. Co. offers a new bulletin on Monotron hardness testing machines which function quickly and accurately under all conditions of practice. Bulletin Je-33.

18-8 Steels

Republic Steel Corp. has prepared a new 16-page booklet giving up-to-the-minute data on Enduro 18-8 stainless steels including their several special analyses. Authentic metallurgical and fabricating information is given. Bulletin Je-8.

Roller Bearings

Timken Roller Bearing Co. has arranged in loose-leaf form a description of Timken bearings with data on ratings, load calculations and bearing selection. For executives and interested engineers only. Bulletin Je-71.

Magnesium Alloys

Dow Chemical Co. offers (to metal industry executives only) an elaborate booklet on Dowmetal light magnesium alloys. Much valuable information on fabrication and shop practices is given. Bulletin R-107.

Armco Stainless

American Rolling Mill Co. offers a very attractive booklet which gives much information on Armco 18-8 and 17% Cr sheets, plates and strip. The booklet is designed for users of such material. Bulletin R-115.

Refractory Cement

Quigley Co. has prepared a folder on Q-Chrome neutral base, superrefractory cement which will not soften or crumble in any fuel-fired furnace. Many valuable tips on furnace up-keep are given. Bulletin R-108.

Hard Facing

Haynes Stellite Co. offers to executives a 96-page booklet full of data on the applications of Stellite and other hard facing materials. A complete index facilitates reference to specific uses. Bulletin R-109.

Meehanite Castings

A folder of Meehanite Metal Corp. gives full information on the products of the Meehanite process of casting sound iron with close control of properties. Illustrated with photographs, tables and charts. Bulletin R-110.

New Way to Case Harden

Chapmanizing, the new method of surface hardening steel with nitrogen is described in a very attractive booklet of Chapman Valve Mfg. Co. Information is given out on the method itself and on its metallurgical advantages. Bulletin R-111.

Arc Welder

An attractive 24-page booklet in colors gives at a glance the distinguishing features of the P & H "Hansen" arc welder made by Harnischfeger Corp. A very interesting description. Bulletin R-112.

Radiation Pyrometer

Thwing Instrument Co. offers a scholarly description of the theory and use of radiation pyrometers in the metal industry. All possible information is presented in this illustrated file folder. Bulletin R-113.

Bath-Type Furnaces

Harold E. Trent Co. offers a leaflet telling about their pot and trough type furnaces for lead, salt and cyanide, operating up to 1700° F. Construction details are explained. Illustrated. Bulletin R-114.

Electric Furnaces

The electric furnaces made by Hoskins Mfg. Co. are well presented in their latest catalog. Contents include data on 17 types of furnaces and some valuable information on Chromel resistance wires and thermocouples. Bulletin Sp-24.

Metals Under Heat

Leitz Dilatometers for the thermal analysis of metal record photographically seven different curves showing the action of metals under heat. A most interesting pamphlet gives full details of this important metallurgical instrument. Bulletin M-47.

Structural Bronze

Olympic Bronze, a high copper alloy containing silicon and zinc, is suggested by Chase Brass & Copper Co. for structural and engineering purposes. A new booklet gives many interesting details about its use. Bulletin M-59.

Electric Furnaces

Thirty-five different types of electric furnaces are pictured in a new folder of Hevi-Duty Electric Co. Also described are the new excess temperature cut-out and the electromagnetic furnace with atmosphere control. Bulletin M-44.

Titanium in Steel

The use of ferro carbon-titanium in steel is thoroughly described in a booklet of Titanium Alloy Mfg. Co. Titanium's application in forgings, castings, rails, sheets and plates is interestingly explained. Bulletin M-90.

Manual of Pyrometry

Brown Instrument Co. offers an elaborate manual which describes the 50 exclusive features of their potentiometer pyrometer. The book will greatly interest those who must maintain accurate temperature. Bulletin Jr-3.

New Furnace Control

A new and unusual instrument for controlling heating rate of electric furnaces is announced by Lindberg Steel Treating Co. An interesting folder tells how this device "turns down the heat" on any size electric furnace. Bulletin Ar-66.

Cast Vanadium Steel

Jerome Strauss and George L. Norris have written a technical booklet for Vanadium Corp. of America describing the properties developed by steel castings containing various percentages of vanadium. Bulletin S-27.

Heat Treating Manual

A folder of Chicago Flexible Shaft Co. contains conveniently arranged information on heat treating equipment for schools, laboratories and shops, and also illustrates the several types of Stewart industrial furnaces. Bulletin Ar-49.

Welding Rods

Linde Air Products Co. offers an attractive booklet giving the properties and uses of every type of Oxweld welding rod. A fund of reliable general data on welding rods is strongly featured in the book. Bulletin Jr-63.

New Joining Process

Metal parts are joined cheaply, neatly and strongly by Electric Furnace Co.'s new, inexpensive nonoxidizing furnace atmosphere and their new, continuous brazing, coppering and soldering furnaces. Full details are given in Bulletin Ar-30.

Non-Ferrous Annealing

General Electric Co. describes bell-type furnaces for annealing non-ferrous metals in a new folder which gives many data on operation and performance. Description is from technical rather than sales angles. Bulletin Ar-60.

Roll Grinding

Carborundum Co. has published a 50-page handbook on roll grinding containing a great store of information on this subject. Carefully written and illustrated, this treatise has real practical value. Bulletin Au-57.

Cold Drawn Shafting

Union Drawn Steel Co. has an interesting and attractive booklet on cold finished shafting. The complete story of its manufacture is told, and recommendations for specific applications are given. Bulletin Ar-83.

Pickling Inhibitors

A pamphlet describing the nature and use of Grasselli Inhibitors is offered to those interested in pickling. A feature is a table of inhibitor strengths recommended for pickling various steels. Bulletin Ap-95.

The Prevention of Rust

"Proof of Results" is the apt title of a new booklet issued by Dearborn Chemical Co. Dozens of photographs, supported by an interesting text, show how No-Ox-Id keeps steel from rusting. Bulletin Mr-36.

Carburizing Boxes

Driver-Harris Co. devotes a folder to Nichrome cast carburizing boxes. Physical properties at room temperature and under operating conditions are given, as are the advantages of Nichrome castings for such service. Bulletin Jr-19.

Hardness Testing

Men interested in hardness testing may find it worth while to read the recent catalog of Wilson Mechanical Instrument Co. which describes the latest design of Rockwell hardness testers and auxiliary work supports. Bulletin Sp-22.

Uses of Molybdenum

Climax Molybdenum Co. offers a useful 50-page booklet showing the benefits conferred by alloying molybdenum with iron and steel. The engineering data presented are made clear by many tables and illustrations. Bulletin Au-4.

11 Stainless Steels

Pertinent facts on 11 different types of Bethadur and Bethalon corrosion resisting steels are presented in a 40-page Bethlehem Steel Co. booklet. Advantages and limitations of each type are frankly presented. Bulletin Fb-76.

Air for Furnaces

Users of gas or oil-fired furnaces know the necessity for a dependable source of large volumes of air at low pressures. A generously illustrated folder of Spencer Turbine Co. shows why their Turbo-Compressors give unfailing, economical air service. Bulletin Mr-70.

X-Rays in Industry

General Electric X-Ray Co. has available a profusely illustrated brochure which gives the complete story of the industrial applications of X-Rays, the modern inspection tool. Bulletin Ma-6.

Thermit Welding

Metal & Thermit Corp. offers a new booklet showing all the possibilities of Thermit welding, explaining the action, and telling in detail how representative Thermit welds can best be made. Well illustrated and clearly written. Bulletin Ar-64.

New Tempering Furnace

American Electric Furnace Co. has a new, low-priced electric air tempering furnace. It heats to 600° F. in 5 min. and to 1000° F. in 15 min., transferring heat to work 50 times faster than still air and 6 times faster than salt. Bulletin Mr-2.

New Stainless Booklet

USS chromium and chromium nickel steels are thoroughly discussed in a beautiful booklet offered by American Sheet & Tin Plate Co. and other subsidiary stainless manufacturing companies. Information on 8 types of stainless is given. Bulletin Fb-96.

Quenching Handbook

E. F. Houghton & Co. have published an excellent 80-page handbook on the subject of quenching. More than 30 charts and photomicrographs help tell the story. A copy will be sent free to those who request it. Bulletin Jl-38.

Sheffield Steels

Wm. Jessop & Sons, Inc., have a booklet which tells why a special anneal and a proper balancing of carbon, manganese and tungsten combine to make Sheffield Superior oil hardening steel non-distorting and easily machinable. Bulletin Jn-61.

Economical Cleaning

Pangborn Corp. describes its Type GF blast cleaning barrel in a recent folder which also illustrates the advantages of cleaning with sand or steel abrasives. The folder is a complete manual of operation for this equipment. Bulletin Mr-68.

Hardening High Speed

No spoilage when high speed steel is hardened in Certain Curtain electric furnaces, claims a recent booklet of C. I. Hayes, Inc. Grain growth is controlled and the most delicate tools develop maximum hardness without decarburization, scaling or fusion. Bulletin No-15.

Big-End-Up

Gathmann Engineering Co. briefly explains the advantages of steel cast in big-end-up ingots, showing the freedom from pipe, excessive segregation and axial porosity. An 82% ingot-to-bloom yield of sound steel is usual. Bulletin Fe-13.

Heat Controller

As a companion instrument to their new indicating pyrometer, Foxboro Co. has introduced a new and inexpensive temperature controller which is dependable and easy to operate. Close control of temperatures is possible. Bulletin Mr-21.

Heat Treating Machine

A new continuous machine for atmosphere heat treating is covered by an American Gas Furnace Co. bulletin. A variety of treatments may be performed by passing different atmospheres through the muffle. Description is complete and interesting. Bulletin Jr-11.

High Nickel Castings

International Nickel Co. offers a useful and attractive booklet on castings of pure nickel, monel, Inconel, Everbrite and nickel silver, describing the proper uses of these castings in mechanical, corrosion resisting and decorative applications. Analyses and properties are given. Bulletin Mr-45.

Optics in Metallurgy

Many uses for optical instruments in metal working are described in a new booklet of Bausch & Lomb Optical Co. Photomicrography is prominent, but this well illustrated booklet shows many other interesting optical instruments. Bulletin No-35.

Heat Resisting Alloys

Authoritative information on alloy castings, especially the chromium-nickel and straight chromium alloys manufactured by General Alloys Co. to resist corrosion and high temperatures, is contained in Bulletin D-17.

Rustproofed Steel

Atmosphere does not corrode steel which has been rustproofed with Duozinc, a mercury-containing zinc anode with marked production properties. Full details are given in a folder issued by the R. & H. Chemicals Dept. of duPont. Bulletin Ar-29.

X-Rayed Alloy Castings

Electro Alloys Co. describes their X-Ray inspection of Thermalloy heat resisting castings for high temperature work. Considerable data on the use of X-Ray tubes and "radon" capsules to check foundry practice are presented. Bulletin Oc-32.

Air Heaters

SC Air Heaters are described in a recent Surface Combustion Corp. bulletin which tells how these efficient and economical heaters operate in heat treating, drying, finishing, core and mold baking. Operating data are presented. Bulletin Ar-51.

American Society for Steel Treating,
7016 Euclid Ave., Cleveland.

Please have sent to me without charge the following literature as described in the May issue. (Please order by number only.)

.....

.....

.....

Name .....

Position .....

Firm .....

Address .....

BUFFALO REPORTS 2 GOOD MEETINGS

de Coriolis and Gager Speak in January and February

By F. L. Weaver

The dinner which preceded the January meeting of Buffalo chapter was followed by a coffee talk on the romantic history of flying. The speaker, Capt. Joseph Strommee, U. S. Air Service, proved both interesting and entertaining.

The technical speaker, E. G. de Coriolis, research director of Surface Combusion Corp., Toledo, gave a most interesting talk on present-day equipment for heating metals in controlled atmospheres.

Bright annealing, heating for quenching and the recording of the analysis of the atmosphere were of special interest, as witnessed by the long discussion that followed.

Attendance at the chapter's February meeting was handicapped by the extreme cold winter.

The monthly guessing contest as to the number of men who would attend the dinner was won this month by W. H. Blocksidge and E. R. Starkweather. Free dinners were the prizes.

The speaker, W. M. Gager of the R. & H. Chemical division of E. I. du Pont de Nemours & Co., and a member of the Buffalo chapter, gave an interesting talk on application of sodium cyanide to the metal treating industry.

He covered the following subjects: Manufacturing methods, properties, uses, deterioration, nitriding and salt baths. An interesting discussion followed.

STUDY AUTOMOBILE STEELS

Washington Men Hear McCloud Outline Selection of Metals for Cars

By W. H. Swanger

Of timely interest to all members and visitors present at the April 11 meeting of the Washington chapter was the subject of the evening's discussion, "Automobile Steels."

J. L. McCloud, metallurgical engineer, Ford Motor Co., gave a detailed account of the significant features of the steels and a number of non-ferrous metals used by Ford. Similarity to or a deviation from current specifications for automotive steels used elsewhere were pointed out. Mr. McCloud also cited examples where adaptability to mass production methods was met by exactitude in specification requirements.

The discussion from the floor, following Mr. McCloud's talk, was centered chiefly on the cast crank shaft recently put in production by Ford.

HOW TO HARDEN CAST IRON

Buffalo Men Hear J. S. Vanick Speak at Good Meeting on March 8

By F. L. Weaver

A very interesting movie showing the manufacture of auto bodies introduced the seventh meeting of Buffalo chapter's season, held March 8.

After the picture was shown, Chairman Clyde Llewelyn selected Clayton D. Grover as technical chairman, who very graciously introduced the speaker, J. S. Vanick, metallurgist with International Nickel Co.

Mr. Vanick no doubt surprised many present with his remarkable discourse on the hardening of cast iron, especially by methods so closely related to those used in hardening steel.

His talk was well illustrated by slides of microstructure, alloy composition and physical properties which indicated the trend towards the application of cast iron to engineering requirements heretofore unheard of.

MCQUAID CLOSES CLEVELAND'S YEAR WITH ABNORMALITY TALK

Outlines Effects of Grain Size

By Gordon T. Williams

Over 250 members and guests attended the Cleveland chapter's last technical meeting of the season at the Cleveland Club, May 7. All were enthusiastic over the excellent program, headlined by Dr. George W. Crile and Harry W. McQuaid, Republic Steel Corp.

Dr. Crile, as coffee talker, discussed some of the work he and his associates at the Cleveland Clinic Foundation are doing toward the determination of the source of life in protoplasm.

The annual business meeting of the chapter followed. Secretary-Treasurer Pulsifer read his report which showed an excellent financial condition.

Technical Chairman for the evening was Dr. H. A. Schwartz, National Malleable & Steel Castings Co., who introduced Mr. McQuaid.

Mr. McQuaid's fine talk summarized the origin of the study of abnormality in case-hardening steels, and the transition of this concept to the allied matters of depth of hardening and grain size. By charts, pictures and discussion, he described the present applications of grain size control in fabrication, heat-treatment and service.

A vigorous discussion followed, to bring to a close one of the Cleveland chapter's most successful meetings.

MALCOLM DISCUSSES STEELS

Schenectady Men Hear about Special Alloy Steels and Treatments

By L. L. Wyman

The April meeting of the Schenectady chapter was held on April 17, the speaker of the evening being V. T. Malcolm of the Chapman Valve Manufacturing Co.

The subject of the lecture was "Special Alloy Steels and Heat Treatments." Particular attention was paid to chrome-tungsten alloys for use at high temperatures.

Chapmanizing was also discussed as a form of nitriding which can be applied to low carbon steel, thus eliminating the necessity of using alloy steels.

Mr. Malcolm's subjects were very interesting, as was proved by the discussion which followed.

1500 SEE FILM OF BRIDGE

Schenectady Chapter Has Roebling Film Shown on Three Successive Days

By L. L. Wyman

The March meeting of the Schenectady chapter proved to be a gigantic success and even necessitated repetitions of a portion of the program.

The features of the evening consisted of a talk by H. C. Boynton of John A. Roebling's Sons Co., illustrated with seven reels of motion pictures depicting the entire construction of the "Span Supreme," the George Washington Hudson River Bridge.

On the evening of March 20 the original presentation was made to all who could sit and stand in Rice Hall at the General Electric Research Laboratory, and some 600 were accommodated in this way.

The interest was so keen that additional presentations were made on the two succeeding days, until over 1500 had benefited by this interesting story.

F. B. OLCOTT LEAVES NAVY BUREAU

F. B. Olcott, member of the Washington chapter of the Society, has become a member of the newly organized firm of Shirley & Olcott, handling Washington sales representation for Alan Wood Steel Co., Latrobe Electric Steel Co., Michigan Steel Castings Co. and Bridgeport Brass Co.

For the past ten years Mr. Olcott has been senior materials engineer of the Bureau of Construction and Repair, Navy Department.

Employment Service Bureau

Address answers care of A. S. M., 7016 Euclid Ave., Cleveland, unless otherwise stated.

EXPERIENCED METALLURGIST: Background of 20 years' making steels (all kinds); steel iron and non-ferrous foundries; supervision of forgings from smallest drop-hammer work up to 80-tons press jobs. Also general fabrication experience. Box 5-5.

OPEN HEARTH SUPERINTENDENT or assistant. Experienced in all grades of steel. Graduate metallurgical engineer. Best references. Box 5-10.

ENGINEERING EXECUTIVE: 5½ years in industrial and engineering work in supervisory capacities such as production manager, foundry superintendent, metallurgist. Proven sales ability. Box 5-15.

CHEMICAL AND METALLURGICAL ENGINEER: Six years' experience in steel foundry, chemical and physical testing, heat treating; practical electric furnace melter; interested in process engineering and ferrous development. No selling. Box 5-20.

METALLURGIST: Five years in production and research in both ferrous and non-ferrous work. Two years in air conditioning engineering. Sales experience. Box 5-25.

COLLEGE GRADUATE: Bachelor's degree and postgraduate work in metallurgy. Wants to join a progressive organization which offers good opportunities. Box 5-30.

METALLURGIST: College graduate. Very familiar with anti-friction bearing manufacture and with bolt and screw making. Trained in both production and research. Box 5-35.

PRACTICAL MAN: I am not a technically trained man, but I do know what makes shop wheels turn. Am a practical metallurgist with broad executive experience. Box 5-40.

SALES METALLURGIST with record in Cleveland district. 15 years' experience as metallurgist, heat treater and chemist for steel plants, auto production and foundries. College education. Box 5-45.

METALLURGIST-CHEMIST-SALES ENGINEER with 14 years' experience as head of laboratory making technical investigations, heat treating and other production problems. Good references. Box 5-50.

NOTICE

Although some of the chapters have already elected officers for the next season and have reported the results to National Headquarters, these election results have been held over to the July issue of the REVIEW in order that the new officers of all the chapters may be listed at one time.

SHOW AND PROGRAM PLANS

Continued from Page One

ing metallurgists, two or three sessions will be devoted entirely to discussion of effect of grain size.

The melting session, of which Dr. C. H. Herty, Jr., is chairman, will be another feature of the A.S.M. program. Some excellent papers are planned for this session.

The programs of the other societies cooperating in the Exposition have not yet been announced but it is known that the American Welding Society, the A.I.M.E. and the Wire Association are all planning unusually fine programs for the New York meeting.

SEVERAL NEWS PARAGRAPHS OF CLIMAX MOLYBDENUM CO.

Climax Molybdenum Co. has recently opened two new offices. Edward R. Young will be in charge of the Chicago office in the Straus Bldg., 310 So. Michigan Blvd., Chicago. Paul M. Snyder will head the Canton office in the First National Bank Bldg., Canton.

Victor Crosby, formerly foundry metallurgist for Studebaker Corp., has joined the metallurgical force of Climax Molybdenum Co. as foundry metallurgist, working out of the Detroit laboratory.

The Detroit laboratory has been greatly enlarged and a Detroit Electric Rocking Furnace and a Pittsburgh 'Lectromelt Furnace have been installed, as has necessary accompanying equipment such as heating furnaces and a forging hammer.

Max Schott, president of Climax Molybdenum Co., has sailed from New York on an extended European business trip which will take him to Moscow, U.S.S.R.

Edwin H. Kottnauer, chairman of the Los Angeles chapter of the A.S.M., is spending a few days in the Detroit laboratories of Climax Molybdenum Co. He is also attending the American Petroleum Institute meeting.

INDIANAPOLIS MEN HEAR TALK ON MACHINABILITY OF STEELS

C. F. Goldcamp at April Meeting

By A. E. Focke

The regular meeting of Indianapolis chapter was held April 16.

C. F. Goldcamp, metallurgical engineer, Jones & Laughlin Steel Corp., presented an interesting and instructive talk on the "Development of Machinability in Screw Steel."

[Inasmuch as several detailed reports of Mr. Goldcamp's interesting talks on machinability have appeared in recent issues, it will not be abstracted again at this time.—EDITOR.]

The discussion of this paper was spirited and Mr. Goldcamp enlarged in a very interesting manner upon the concept of "sensitivity" of the steel as an explanation of the reaction of a steel heat to the machining operation.

Two reels of films produced by Jones & Laughlin were used to illustrate the general process of manufacture of bessemer screw steel.

PUBLISH METAL STATISTICS BOOK

The 27th annual edition of *Metal Statistics* has just been published by the *American Metal Market*, 111 John St., New York.

This edition furnishes a record of production, consumption, prices, and imports and exports of all important metals, together with data on various brands, analyses, trade terms, custom duties, etc.

WALTER D. WOOD DIED APRIL 20

Walter D. Wood, for 63 years president of R. D. Wood & Co., Philadelphia, died April 20 after a brief illness.

Mr. Wood, since 1926 a member of Philadelphia chapter, was also president of Florence Pipe Foundry & Machine Co., Florence, N. J.

HONOR CLIMAX MOLYBDENUM ADS

Two advertisements of a series run in *Metal Progress* were recently awarded honors at the annual exhibition of the Art Directors' Club in New York City. The advertisements were for the Climax Molybdenum Co. and won awards for art work and for layout of a complete advertisement.

In preparing the advertisement a new type of art work known as "air brush art" was employed. N. W. Ayer & Son, Inc., is the advertising agency which handles the Climax account.

ST. LOUISANS LIKE MEETING FEATURING GLASS INDUSTRY

Bowes and Waterbury Speakers

By C. M. Stevenson

Once more, the St. Louis chapter has come to the front with one of its largest and most successful meetings of the fiscal year, which was held April 20.

Preceding the meeting the Owens-Illinois Glass Co., Alton, Ill., made it possible for a plant inspection of their glass works, starting in with their new machine shop, constructed entirely of glass, which was followed by a trip through the plant viewing the manufacture of glass containers.

After dinner at the Stratford Hotel, U. E. Bowes, chief, research department, presented one of the most interesting talks that we have had for sometime, his subject being "Nature and Fabrication of Glass."

Following his address, M. E. Waterbury, metallurgist, chose as his subject "Metals Used in The Glass Container Industry," which was also very interesting.

BOTFIELD DEVELOPS CHROME CEMENT

Latest of developments offered by Botfield Refractories Co., Philadelphia, is an improved chrome base refractory cement.

The improved material is being marketed under the trade name of Adachrome super-cement and is said to be unique in that its component materials will not settle in the drum or mortar box but remain in suspension indefinitely.

The base of this improved cement is high grade South African chrome ore with a high chromic oxide content and very low silica content.

N. E. WOLDMAN OPENS LABORATORIES

Dr. Norman E. Woldman, formerly metallurgical engineer for Westinghouse Electric & Manufacturing Co., has opened his own consulting chemical and metallurgical laboratories at 10616 Euclid Ave., Cleveland, under the name Crystal Engineering Laboratories.

Dr. Woldman taught chemistry and metallurgy at the University of Maine and the University of Illinois, and was head of the department of metallurgy and chemistry at the U. S. Naval Academy Postgraduate School. He has also had wide commercial experience.

B. B. WEINBERG JOINS AMER. SHEAR

B. B. Weinberg, formerly a director and vice-president in charge of sales of the Heppenstall Co. of Pittsburgh, and up until now vice-president and treasurer of the Heppenstall Razor Co. of Newark, N. J., resigned April 1st, 1934.

He is now vice-president and treasurer of the American Shear Knife Co. of Homestead, Pa., manufacturers of alloy steel shear knives and steel mill forgings.

TWO NAMED TO DISTRIBUTE ENDURO

Gate City Iron Works Co., Omaha, Nebr., and Earle M. Jorgensen Co., Los Angeles, Calif., are newly appointed distributors of Stainless Steel, according to announcement by N. J. Clarke, vice-president in charge of sales, Republic Steel Corp.

HEVI DUTY APPOINTS OHIO AGENT

L. A. Shea, who has been in charge of the electrical department of Hevi Duty Electric Co., Milwaukee, has been appointed district representative for Ohio, with offices at 5005 Euclid Avenue, Cleveland.

Maxfield Pease, 4614 Prospect Ave., Cleveland, has been appointed exclusive Northern Ohio representative for H. O. Swoboda, Inc., Pittsburgh, makers of Falcon electric heat treating furnaces and immersion heaters.

POSITION WANTED

Metallurgist! Fifteen years with 4 large automobile makers. Experience includes laboratory testing, heat treating, sheet steel forming, iron and aluminum foundry practice and development work on aircraft engines. Qualified to specify materials. Now employed.

Production work with relatively small concern where metallurgical knowledge may be applied to manufacturing problems is desired.

Address Box 5-7, % American Society for Metals, 7016 Euclid Ave., Cleveland.

SALESMAN WANTED

Long established steel warehouse wants tool steel salesman to cover New York Metropolitan area, one who has acquaintanceship with trade in this district preferred. State previous record and salary desired. Address: Box 5-12, % American Society for Metals, 7016 Euclid Ave., Cleveland.

MONTREAL MEETING GETS RECORD CROWD

Members Hear How Canadian Firm Makes Tool Steels

By Gordon Sproule

"Tool Steels," presented by Roy H. Davis and Harold B. Chambers, of Canadian Atlas Steels, Ltd., drew a record crowd at the April 2 meeting of Montreal chapter. Seventy-five members and guests sat down to dinner and the usual proportion came in after for the lecture.

Mr. Davis described the development of this now purely Canadian company which has modernized all its steel making, finishing and control equipment.

Mr. Chambers described the steel making process very briefly, as it was shown fully later in a new film. The three-end-up electrode arc furnace is used to make the steel, which is cast in big-end-up molds with hot tops. The finishing operations and testing laboratories were also shown and described.

With the aid of a chart, Mr. Chambers described carbon steels, oil hardening (non-deforming) steels, hot-work steels and high speed steels. He described the sub-classes and explained the effects of alloying elements, for example the deep hardening effects of manganese and chromium and the heat resisting effects of tungsten.

The coffee talk consisted of a film, provided through the courtesy of Air Reduction Sales Co., showing oxyacetylene welding and cutting.

NELSON OUTLINES HISTORY OF IRON AND STEEL FOR ONTARIO

Chapter Enjoys Historical Talk

By John W. McBean

After dinner, at the April meeting of Ontario chapter, we had an interesting coffee talk by Phillip Bellows on "Mind—the Motive Power of the Human Machine."

The technical paper was given by T. Holland Nelson who has given this chapter more talks than any other speaker and who is always welcome. His talk this time was on the manufacture of iron and steel from early times.

He covered the making of wrought iron and the development of furnaces from the Catalan forge on, covering the work of the Walloons and their migration to Sweden.

Mr. Nelson also traced the story of steel making down to present practices.

One of the interesting sidelights of the paper was that Huntsman was a clockmaker and Bessemer originally an engraver. This served to illustrate the point that advances in arts or sciences may not follow from long familiarity but may equally well result from a fresh viewpoint.

Seasoned!

With business on the upswing, you may now feel the need for addition to your executive organization.

Besides a university technical training, I have had seven years' experience in steel metallurgy, more than two years of it with a prominent ball bearing manufacturer, as Assistant Metallurgist and Assistant Superintendent of the heat treatment department.

In addition, I've had nearly fourteen years of commercial life, as proprietor of the business I now operate, more than half the time devoted largely to the study and practice of advertising.

I shall be pleased to send you my record in detail, on request, which will obligate you to nothing but a study of it in relation to your own business.

Address Box 5-1

American Society for Metals
7016 Euclid Avenue Cleveland, Ohio